

## **Amendments to the Claims**

This listing of claims will replace all prior versions, and listings, of claims in the application.

### **Listing of Claims:**

Claims 1 – 41 (Cancelled)

42. (Currently Amended) A method for improving security in a computer network utilizing password-based access, the method comprising:

signing a phrase using a private key assigned to a remote user;

associating the signed phrase with the remote user; and

storing the private key assigned to the remote user in a key chain of a provided security chip, wherein the key chain is formed by wrapping the private key ~~assigned to the remote user~~ using at least one child key pair assigned to the computer network, wrapping the at least one child key pair using at least one parent key pair assigned to the computer network, wrapping the at least one parent key pair using at least one grandparent key pair assigned to the computer network, and wrapping the at least one grandparent key pair assigned to the computer network using an encryption key assigned to the provided security chip.

43. (Previously Presented) The method of claim 42, wherein the phrase is a password of the remote user.

44. (Previously Presented) The method of claim 42, wherein the phrase is separate from a password of the remote user.

45. (Previously Presented) The method of claim 42, further comprising:  
using the signed phrase associated with the remote user to determine whether to grant the remote user access to the computer network.

46. (Cancelled)

47. (Currently Amended) The method of claim 42, wherein the private key assigned to the remote user, the encryption key assigned to the provided security chip, and the at least one child key pair, the at least one parent key pair, and the at least one grandparent key pair assigned to the computer network are created within the provided security chip.

48. (Previously Presented) The method of claim 42, wherein both the private key assigned to the remote user and the encryption key assigned to the provided security chip are known only to the provided security chip.

49. (Previously Presented) The method of claim 42, wherein the provided security chip is a Trusted Platform Module (TPM).

50. (Previously Presented) The method of claim 42, further comprising:  
storing the signed phrase associated with the remote user.

51. (Currently Amended) A computer readable medium including a computer program for improving security in a computer network utilizing password-based access, the computer program comprising instructions for:

signing a phrase using a private key assigned to a remote user;

associating the signed phrase with the remote user; and

storing the private key assigned to the remote user in a key chain of a provided security chip, wherein the key chain is formed by wrapping the private key assigned to the remote user using at least one child key pair assigned to the computer network, wrapping the at least one child key pair using at least one parent key pair assigned to the computer network, wrapping the at least one parent key pair using at least one grandparent key pair assigned to the computer network, and wrapping the at least one grandparent key pair assigned to the computer network using an encryption key assigned to the provided security chip.

52. (Previously Presented) The computer readable medium of claim 51, wherein the phrase is a password of the remote user.

53. (Previously Presented) The computer readable medium of claim 51, wherein the phrase is separate from a password of the remote user.

54. (Previously Presented) The computer readable medium of claim 51, wherein the computer program further comprises instructions for:

using the signed phrase associated with the remote user to determine whether to grant the remote user access to the computer network.

55. (Cancelled)

56. (Currently Amended) The computer readable medium of claim 51, wherein the private key assigned to the remote user, the encryption key assigned to the provided security chip, and the at least one child key pair, the at least one parent key pair, and the at least one grandparent key pair assigned to the computer network are created within the provided security chip.

57. (Previously Presented) The computer readable medium of claim 51, wherein both the private key assigned to the remote user and the encryption key assigned to the provided security chip are known only to the provided security chip.

58. (Previously Presented) The computer readable medium of claim 51, wherein the provided security chip is a Trusted Platform Module (TPM).

59. (Previously Presented) The computer readable medium of claim 51, wherein the computer program further comprises instructions for:

storing the signed phrase associated with the remote user.

60. (Currently Amended) A system for improving security in a computer network utilizing password-based access, the system being operable to:

sign a phrase using a private key assigned to a remote user;

associate the signed phrase with the remote user; and

store the private key assigned to the remote user in a key chain of a provided security chip, wherein the key chain is formed by wrapping the private key assigned to the remote user using at least one child key pair assigned to the computer network, wrapping the at least one child key pair using at least one parent key pair assigned to the computer network, wrapping the at least one parent key pair using at least one grandparent key pair assigned to the computer network, and wrapping the at least one grandparent key pair assigned to the computer network using an encryption key assigned to the provided security chip.

61. (Previously Presented) The system of claim 60, wherein the phrase is a password of the remote user.

62. (Previously Presented) The system of claim 60, wherein the phrase is separate from a password of the remote user.

63. (Previously Presented) The system of claim 60, wherein the system is further operable to:  
use the signed phrase associated with the remote user to determine whether to grant the remote user access to the computer network.

64. (Cancelled)

65. (Currently Amended) The system of claim 60, wherein the private key assigned to the remote user, the encryption key assigned to the provided security chip, and the at least one child

key pair, the at least one parent key pair, and the at least one grandparent key pair assigned to the computer network are created within the provided security chip.

66. (Previously Presented) The system of claim 60, wherein both the private key assigned to the remote user and the encryption key assigned to the provided security chip are known only to the provided security chip.

67. (Previously Presented) The system of claim 60, wherein the provided security chip is a Trusted Platform Module (TPM).

68. (Previously Presented) The system of claim 60, wherein the system is further operable to:  
store the signed phrase associated with the remote user.